

which gives us a very complete and critical review of all the facts of the physiology of reproduction. It will make a new "jumping-off place," as the Americans say, in research, and it is, moreover, admirably written. As an eminent gynaecologist said, "It is as interesting as a novel." It is a text-book which will be a great help to all those who are already working at the science, and a stimulus to encourage new workers. To everyone who is interested in breeding we would recommend this book, though it is not, however, in any sense a popular work.

#### SOUTH AFRICAN CRUSTACEA.

*Annals of the South African Museum.* Vol. vi., part iv., 6: *General Catalogue of South African Crustacea* (part v. of S.A. Crustacea, for the Marine Investigations in South Africa). By the Rev. T. R. R. Stebbing, F.R.S. Pp. 281-593, plates xv-xxii. (Cape Town: South African Museum; London: West, Newman, and Co., 1910.) Price 27s.

IN the study of the geographical distribution of marine animals, certain regions are of special significance from the fact that they lie on the borderlines between contrasted faunal areas, and offer, or may have offered in the past, possible routes of migration from one to the other. One of these critical regions is found at the Cape of Good Hope, where the faunas of the Atlantic, the Indo-Pacific, and the great southern oceans meet and, to some extent, overlap.

In recent years much information regarding the fauna of the Cape seas has been obtained in the course of investigations conducted under the superintendence of Dr. J. D. F. Gilchrist for the Cape Government, and published under the general title of "Marine Investigations in South Africa." To this series Mr. Stebbing has already contributed four important memoirs on the crustacea. In a fifth memoir, now published, he brings together the results of his own work and that of his predecessors who have dealt with this groups of animals, in a "General Catalogue of South African Crustacea," including the freshwater and terrestrial as well as the marine species.

In the present state of faunistic carcinology it is hardly possible to over-estimate the usefulness of such a catalogue, prepared, as it has been, with the thoroughness and detailed precision characteristic of all Mr. Stebbing's writings. Apart from the descriptions and figures of the numerous new and interesting species, the compilation of the bibliographical references alone must have involved a great amount of labour, of which subsequent students will reap the benefit. Although Mr. Stebbing touches only incidentally on geographical problems, his catalogue will provide a sure basis for future work on this subject.

As an example of the interesting points of detail contained in these memoirs, the case of the Cape lobster, *Homarus* (or, as Mr. Stebbing prefers to call it, *Astacus*) *capensis* may be mentioned. This pretty little species has been involved in obscurity since its first description in 1792 by Herbst, who stated that it

lived in mountain streams at the Cape. H. Milne-Edwards later gave a brief description of the species, but added no information as to its habitat. Huxley, referring to it, says:—

"I must confess myself to be in a state of hopeless perplexity respecting the crayfish or lobster which is said to occur at the Cape of Good Hope."

Mr. Stebbing now supplies a full description of the species from specimens sent to him by Dr. Gilchrist, and finally disposes of the story as to its freshwater habitat. Like the other two species of the genus, the European and American lobsters of the north Atlantic, it lives in the sea, and its remoteness from the areas occupied by its congeners offers a noteworthy example of "discontinuous distribution." It may be mentioned in passing that the only figure of the Cape lobster referred to by Mr. Stebbing is the original one of Herbst, which is very inaccurate. An excellent figure was given by H. Milne-Edwards ("Ann. Sci. Nat., Zool." (3), xvi., 1851, plate xi., Fig. 1); but as it occurs among the illustrations of a morphological paper, it is easily overlooked.

Mr. Stebbing's use of the generic name *Astacus* for the Cape lobster affords an instance of the difficulties into which "reforms" of nomenclature may lead the unwary student. In this case the detailed synonymy which Mr. Stebbing gives prevents any ambiguity, but, unfortunately, other writers are not so careful, and, in view of the long-standing error as to its freshwater habitat, it may not be superfluous to warn the student of geographical distribution that "*Astacus capensis*" is *not* a crayfish.

In many other points of nomenclature the catalogue challenges criticism. Mr. Stebbing is well known as an uncompromising advocate of the strict rule of priority, but he is by no means ready to surrender the right of private judgment, and is even capable of treating disrespectfully the decisions of the International Commission on Zoological Nomenclature. At all events, whatever may be the case with genera and species, there is no law to compel, nor any perceptible advantage to recommend, a renaming of the accepted orders and subclasses of crustacea; and there can be little doubt as to the opinion of zoologists in general on the proposals to substitute Thyrostraca for Cirripedia and Ostrapoda for Ostracoda.

W. T. C.

#### SCIENCE FOR THE GENERAL READER.

*Science in Modern Life.* Prepared under the Editorship of Prof. J. R. Ainsworth Davis. Vol. v. Pp. ix+207. (London: The Gresham Publishing Company, 1910.) Price 6s. net.

THIS volume comprises four contributions, namely, by Prof. James Wilson on agriculture (32 pp.), by Dr. John Beard on philosophical biology (32 pp.), by Prof. Benjamin Moore on physiology and medicine (90 pp.), and by Dr. H. Spencer Harrison on anthropology (52 pp.).

The first article is almost entirely historical; it contains an account of the chief advances in British agriculture from Saxon times, but has little to say on present-day problems and researches. More space

might, with advantage, have been devoted to these subjects.

Dr. Beard gives, in his opening chapter, a concise statement of the views associated with the names of Lamarck, Spencer, Darwin and Wallace, and Weismann. The following chapter, on heredity, deals in turn with Galton's law, Weismann's theory of the germ plasm and with germinal continuity. The third chapter discusses Mendelism, biometry, and the mutation theory of De Vries. Dr. Beard's views can be best summarised by quoting the statement at the head of the concluding chapter—

"The phenomena of heredity and genetic variation appertain to the germ-cells, that is, they are germinal in nature. All ancestry passes through a continuous line of germ-cells, and never through the cells of the individual (somatic cells) containing the germ-cells. An 'inheritance of acquired characters' is impossible, for there is no handing on of anything. The individual is merely a terminal and lateral offshoot. In the higher animals direct development, a building up of the individual, and a somatic origin of germ-cells, do not exist. . . . The formation of an individual is a mere incident in a certain chain of events."

He concludes by stating his belief that unconscious memory, in Hering's sense, is sufficient to account for heredity as exhibited by living things, and that if this be recognised "much that has been imagined becomes, not merely futile, but an unnecessary multiplication of causes."

Prof. Moore has given an interesting account of the functions of many of the different kinds of cells of the body, for instance, the leucocytes, the red blood-cells and their adaptation of form to their special functions, the intestinal cells and their secretion, the ductless glands and internal secretions, &c. Clearly written explanations, as free from technicalities as possible, are given of many of the new terms used in modern medical science, e.g. agglutinins, antibodies, opsonins, precipitins, antisera, hormones, &c.

The chapter on tropical diseases is much too short. The only diseases considered are malaria and sleeping sickness, and the account of the former contains a considerable number of imperfect or inaccurate statements. The following occur on one page (144) (1): "The mosquito was found to develop a special cycle of the malarial parasite in the glands of the stomach," which is a very loose statement of the matter; nothing is said of the presence of the parasites in the salivary glands of the mosquito, or of their mode of entry into a new human host. (2) The changes in the organism of malaria which take place in the mosquito are designated "certain preliminary stages of development," which surely gives but a faint idea of the fundamental changes which actually occur. (3) Mosquitoes do not deposit larvæ, as asserted, but lay eggs. (4) It is stated that the larvæ, "in order to develop further, must at a certain period ascend to the air at the surface of the water"; as a matter of fact they must ascend periodically, and in most cases frequently, in order to obtain the necessary air. Laveran is not Italian, as stated on p. 143, and the first trypanosome in a European was described by Dutton, not Dalton (p. 145). We should have thought

that the recent campaigns against *Stegomyia* (not *Stegomya*, p. 144) and yellow fever were worthy of more than casual mention, and that several other tropical diseases were of sufficient general interest to make reference to them desirable. Figures of *Anopheles* and a tsetse-fly would have been helpful to the reader.

In the short chapter on public health, the author shows how the general health of the community has improved, and urges the necessity for segregation of, and vigilance regarding, cases of consumption.

Dr. Harrison outlines in an interesting manner the chief phases of development of anthropology; the origin of man, of inventions, of civilisation, and of the races of man, are discussed, and an account is given of the races of Europe and of Britain. The article is illustrated by several excellent photographs and a number of coloured and line drawings.

#### OUR BOOK SHELF.

*The Niger and the West Sudan, or the West African's Notebook. A Vade Mecum containing Hints and Suggestions as to what is Required by Britons in West Africa, together with Historical and Anthropological Notes, and Easy Hausa Phrases Used in Everyday Conversation.* By Captain A. J. N. Tremearne. Pp. viii+151. (London: Hodder and Stoughton, and A. H. Wheeler and Co., n.d.) Price 6s. net.

This book is written by a former Hausa scholar of Cambridge, who is also a doctor in anthropology, and the work is the result, seemingly, of some years' residence in Nigeria, with visits to the British colonies *en route*. It contains a good many vocabularies of English-Hausa interspersed amongst the chapters, and some of these will no doubt be of much use to officials and travellers residing in or visiting these regions. There is a great deal of general information about British West Africa, but little evidence of independent research on the part of the author, while the quotations with which the book is studded are of a somewhat ancient and well-worn character. Some recent French and German works (historical, geographical, anthropological, &c.) are overlooked, though they throw a new light on the ancient history of British possessions in West Africa, as well as of the adjacent regions under other flags.

A somewhat contemptuous attitude is taken up with regard to the educated negro, which seems to be derived less from the author's own observation and experience than from the pessimistic views expressed by writers and travellers of half or a quarter of a century ago. In reference to the youth trained at Government or missionary schools—in Sierra Leone, for example—the author seems to be quite unaware of the part played by these intelligent and active young men—engineers, artisans, clerks, &c.—in the opening up of the interior of that colony, or in like manner of the Gold Coast.

In drawing up a list of societies and institutions which may be of use to the African official or student, the writer of this book omits all mention of the African Society, which is surely one of the most useful, for its journal contains the best and latest information on West African subjects. The portion of the work which deals with the Hausa people (chiefly by quotations) possesses some interest, but contains fantastical notions, original and borrowed, which may only mislead the student, such as, for example, the suggested derivation of Hausa from Habeshi